

What is claimed is:

1. A process for the regeneration of a solid acid alkylation catalyst in a reactive distillation alkylation process taking place in a pressurized distillation column including an intermediate reactive catalyst zone having supported therein a solid acid alkylation catalyst, a first rectification zone at the top of the distillation column and a second rectification zone including a reboiler below said reactive catalyst zone, wherein at least a portion of an olefin-containing feedstock is brought into contact with at least a portion of an aromatic hydrocarbon feedstock in counter-current flow within the reactive catalyst zone, wherein the internal pressure in the reactive catalyst zone is maintained above 1 atmosphere and the temperature maintained at reflux of said aromatic hydrocarbon feedstock comprising:
 - A. periodically ceasing the introduction into the distillation column of the olefin-containing feedstock while continuing the flow of aromatic hydrocarbon feedstock and introducing into the column an effective amount of a paraffin feedstock at a point such that the paraffin feedstock intermixes in counter-current flow with the refluxing unreacted aromatic hydrocarbon feedstock as it flows through the catalyst to remove by-products from the catalyst;
 - B. adjusting the reflux rate of said aromatic hydrocarbon to achieve a desired temperature in the catalyst reaction zone above about 175°C at a column operating pressure within the range of from about 125 to about 370 psig.
 - C. separating said by-products from said paraffin and aromatic hydrocarbon in said second rectification zone; and
 - D. removing said by-products from said rectification zone.
2. The process of Claim 1 where said second rectification zone includes a reboiler and said by-products are removed from said reboiler.

3. The process of Claim 1 wherein the paraffin feedstock introduction is such that the mole percent of aromatic hydrocarbon in the catalyst zone is maintained at between about 40% to about 90%.

4. The process of Claim 1 wherein the regeneration is carried out for a period of from about 8 to about 36 hours.

5. The process of Claim 1 wherein said paraffin feedstock comprises C_4 to C_{16} paraffin.

6. The process of Claim 5 wherein said paraffin feedstock comprises C_4 to C_{16} paraffins.

7. The process of Claim 6 wherein said paraffin feedstock comprises C_8 to C_{16} paraffins.